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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,054	11/30/2001	Koji Hashizume	1500.66022	5488

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EXAMINER

KOCH, GEORGE R

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,054

Applicant(s)

HASHIZUME ET AL.

Examiner

George R. Koch III

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(e). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) 5-42 and 45-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 43 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group 1 (claims 1-47) and Species A1 (claims 1-4, 43, 44, 48, 49 and 57) in Paper No. 5 is acknowledged. An action on claims 1-4, 43, and 44 follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. With regard to the language of claim 1, the applicant appears to claim an apparatus with one holding unit generating vacuum or pressure (as in lines 4-9), and then specifies that the control device controls pressure or vacuum through both holding units. It is unclear, if only at least one holding unit generates pressure, how both holding units would be controlled to generate pressure. For the purposes of examination, the broader limitation is interpreted, i.e., that at least one holding unit generates pressure.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Russell (US Patent 6,254,716 B1).

Russell discloses a treatment chamber (item 22, see Figure 1), first and second holding units (items 24 and 26), wherein the first and second units respectively hold first and second substrates, and at least one holding unit (in this case, the upper or first unit, see column 3, lines 1-10) generates pressure to attract the associated pressure to attract the associate substrate through vacuum, a vacuum pump (item 72) which depressurizes the treatment chamber, and a control device (item 90), which controls the treatment chamber, the first and second holding units, and the vacuum pump, and wherein the control device is capable of instructing at least one holding unit to attract the associated substrate through vacuum, depressurize the treatment chamber, and is further capable of substantially equalizing the pressure applied by at least one holding unit with the pressure in the treatment chamber (see column 3, lines 53-67).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell and further in view of JP 2000-258746 .

It is unclear whether the applicant intends for one or two holding units to generate pressure, and whether the control device instructs or controls each holding unit. In the case that applicant intended for two holding units generating pressure and a control device instructing both holding units, the following rejection to claim 1 applies.

Russell discloses a treatment chamber (item 22, see Figure 1), first and second holding units (items 24 and 26), wherein the first and second units respectively hold first and second substrates, and at least one holding unit (in this case, the upper or first unit, see column 3, lines 1-10) generates pressure to attract the associated pressure to

Art Unit: 1734

attract the associate substrate through vacuum, a vacuum pump (item 72) which depressurizes the treatment chamber, and a control device (item 90), which controls the treatment chamber, the first and second holding units, and the vacuum pump, and wherein the control device is capable of instructing at least one holding unit to attract the associated substrate through vacuum, depressurize the treatment chamber, and is further capable of substantially equalizing the pressure applied by at least one holding unit with the pressure in the treatment chamber (see column 3, lines 53-67).

Russell does not disclose two holding units generating pressure and a control device instructing both holding units.

The machine translation of JP 2000-258746 discloses an apparatus for manufacturing a bonded substrate, comprising a treatment chamber and first and second holding units, wherein the two holding units are capable of and are disclosed as holding first and second substrates, and further discloses that both holding unit utilizes vacuum adsorption to generate pressure to attracted associated substrates through vacuum (see Drawing 1 for the treatment chamber and the first and second holding units. See paragraphs 0028-0030 for discussion of the vacuum adsorption of the first and second holding units). The machine translation also discloses a control device which controls the first and second holding units, in order to instruct each holding unit to attract the associated substrate through vacuum (see paragraph 0054, which discloses hydraulics and pneumatics can control the vacuum). One in the art would appreciate that vacuum and pressure control of both holding units would ensure proper holding of the substrates, and would ensure that neither substrate shifts during the lamination

Art Unit: 1734

stage, ensuring proper alignment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such dual holding units generating pressure and dual control of both units in order to achieve proper alignment.

As to claim 43, Russell and JP 2000-258746, in addition to disclosing the first and second holding units, the treatment chamber, first vacuum pump and control device as discussed in claim 1 above, also discloses additional details. Russell, the primary reference, discloses a first control valve (items 84 and 76), and a first pneumatic system for vacuum chucking, structures capable of performing the function of pressure equilization (such as the controller). Furthermore, the presence of vacuum chucking structures make obvious an air/depressurization line, control valve and pumping structure are needed. JP 2000-258746, as part of the dual vacuum holding units incorporated above, makes obvious or inherent the use of two of each structure.

10. Claims 2-4 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Russell as applied to claim 1 above, or Russell and JP 2000-258746 as applied to claim 1 and 43 above, and further in view of JP 05-326451.

As to claim 2, 3 and 44, the references as applied to claims 1 and 43 above do not suggest that each holding unit includes another holding device for holding the substrate, or the control device controlling said another holding device, nor do the references suggest that the another holding device is an electrostatic chuck.

JP 05-326451 suggests that each holding unit includes another holding device for holding the substrate, and that the another holding device is an electrostatic chuck. The machine translation of JP 05-326451 discloses that chucks that solely use vacuum can exert a bad influence with regard to particle accumulation (see paragraph 0003), while chucks that solely use electrostatic effects can deteriorate quickly (paragraph 0007) and that an electrostatic chuck in combination with a vacuum chuck allows for improvement in the defects of both. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized another holding device within each holding unit in order to minimize the negative effects of either holding system and improve manufacturing capabilities.

Furthermore, while Russell does not disclose control of an electrostatic chuck, it does disclose control of chucks and vacuum chambers. It would have been apparent to one incorporating said another holding device of JP 05-326451 would need to have the control device controlling said another holding device, in order to ensure proper operation and synchronization of the chucking and bonding steps with the overall process as shown in Russell. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have controlled said another holding device in order to ensure proper operation and synchronization of the chucking and bonding steps.

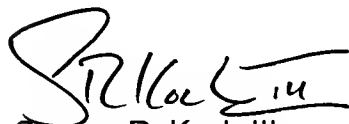
As to claim 4, the apparatus as suggested in claim 2 and 3 above would be capable of substantially equalizing the pressure as claimed.

Art Unit: 1734

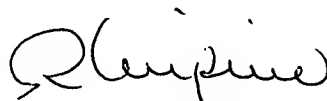
Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (703) 305-3435 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



George R. Koch III
November 16th, 2003



RICHARD CRISPINO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700